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Xeriscaping and Conserving Water in the Landscape

True, Xerophytes are plants adapted to withstand long periods of drought, like a cactus or other succulent desert plants. But xeriscaping is not only desert plantings with succulents, yuccas and gravel. It is a technique of planning a landscape that conserves water by using plants that are tolerant of heat and dryness. Many of the same types of plants can also tolerate wet conditions as well. A water-conserving landscape requires little or no additional water during the periods of extended dryness. It is a landscape that is simple and beautiful with color, form and texture using a variety of plants. Many may be native species.

It has been reported that people in the U.S. use approximately 200 gallons of water each day in doing necessary daily activities. About half of the water used in households may be used for landscape and gardening purposes. People living in the Southwest U.S. are familiar with drought and have learned which plants tolerate dryness better if they are to have any success landscaping without using a lot of water. In Maryland we are fortunate to have a fairly plentiful supply of rain during the spring and fall months, but usually by mid-summer our weather rivals that of the Southwest. Gardeners learn from these experiences and learn which plants require less water and still remain healthy-looking under drought and heat stress.

How Plants Cope with Drought

Plants have a remarkable ability to adapt and have evolved over time to grow successfully in their environment. Some of these adaptations for heat and dryness are not only practical, but also give many plants a special beauty and appeal for use in the landscape. For example, many xeriphytic plants have silvery or gray foliage. This color is created by a coating of fine hairs that shades the leaf's surface, reducing moisture loss by the sun and wind. Another means of protection is a thick wax layer called cutin that gives the leaf a dull bluish color.

Most plants that have evolved for survival under arid conditions also have reduced leaf sizes. When there is less leaf surface area, the moisture loss is reduced. Some types of plants have developed large, fleshy, deep roots (such as a tap root). These enable the plant to reach deep into the soil for moisture that in unavailable to shallower rooted plants. Lastly, many xeriphytic plants have succulent stems that serve as reservoirs of water for use at a later time. The typical example is the cacti although many other types possess these features.

Common Misconceptions about Xeriscaping

- *Lawn grass in the least expensive landscape planting and the easiest to care for*. Yes, a lawn may be the lowest cost to put in initially. Thereafter, however, it requires more frequent maintenance, such as mowing, and other chores than any other landscape feature. If irrigated, lawns require five times more water than other landscape plants.

- *Water-conserving landscapes are dull and lack color*. Contrary to what xeriscaping brings to mind, it is not only cacti and rock gardens. Many woody and herbaceous plants already in popular use in Maryland qualify for xeriscaping. A well-planned water-conserving landscape will have a mixture of carefully selected trees, shrubs, ground covers, annuals and perennials.

- *Drought-tolerant plants don't require any water or maintenance*. Not quite true. All plants need water to become established and drought-tolerant plants are no different in this respect. However, they require a lot less supplemental water and tolerate extended periods of little or no rainfall better than other plants. Drought tolerant plants can easily reduce water use by as much as 50% or more. Like any type of landscape they still need occasional weeding, pruning and pest monitoring.

Water Saving Tips for Homeowners

- Always use water sparingly, irrigating the landscape only when absolutely necessary. Lawns consume the greatest share of water used and many times it is not even required. Lawns in our region normally go into a summer dormancy

when regular rainfall decreases and the temperatures increase. They stop growing and often turn brown. This is a normal process and does not mean the lawn will die. Water established landscape plantings only when the soil is dry to a depth of six inches. Drought tolerant landscapes will be able to withstand these dryer conditions longer without additional water.

- Water in the morning. Watering during the heat of the day increases the amount of water lost to evaporation by as much as 40%. On the other hand, avoid late day or evening overhead watering if possible. Overhead watering at that time promotes fungal diseases because the foliage will not have time to dry before darkness when fungi spores are released.

- Water infrequently, slowly and deeply. Frequent light watering actually does more harm than good because it encourages shallow root growth. The only plants that seem to benefit from frequent shallow watering are weeds.

- Prevent water from running off the landscape. Often sprinklers and other water devices throw water on paved surfaces. This water goes directly into storm drains and is wasted. Use soaker hoses and low-output sprinklers to reduce this type of water waste.

- Repair leaking hose connections and sprinkler parts. It has been estimated that leaking connections waste 50% or more of the water flowing through a hose.

- Turn off automatic sprinkler systems when it is raining. Obviously this makes sense, but many times automatic sprinkler systems are set on a timer and continue to operate even during rain.

- Mow the lawn high. Cool season grass species such as bluegrass, red fescue and tall fescues grow best at a higher mowing height. The recommended height is 2 to 3 inches. This height is not only better for the health of the grass and reduces weed invasion, but also shades the soil, reducing evaporation of moisture.

- Mulching planting beds. Organic mulches, such as bark, not only add an aesthetic touch to the landscape and reduce weeds, but they also reduce evaporation from the soil and keep the soil cooler during the summer. The porous texture of mulch also traps water allowing it to percolate slowly into the soil instead of running off the site. The recommended depth for mulch is about 2 inches. Remove old mulch or incorporate it into the soil before applying fresh material. Too often people over apply mulches, causing them to be several inches over the recommended depth. This is damaging because it starves the surface roots of oxygen. Also be careful not to pile mulch against the stems and trunks of woody plants. This can cause cankers and other rots to occur.

- Plant trees and shrubs in mass plantings. Most residential landscapes have only a few shade trees scattered individually. Shrubs are also often planted individually. Trees and shrubs actually look best when planted in groups. Planting in this manner will reduce the lawn area and therefore reduce maintenance time and watering.

- Rethink the lawn. So many homeowners try to maintain grass in places where it simply does not grow well. It becomes thin and the exposed soil dries, becomes compacted and erodes during storms. Grass is not the best choice under the dense shade of trees, on steep slopes, narrow strips between buildings and walkways or areas of heavy foot traffic. Use ground covers or other suitable plants or durable materials instead.

- Plant in the spring or fall when temperatures are lower and water loss from the soil is reduced. This is an easier time for new plantings to get established with less water needed.

- Make small earthen basins around newly planted trees and shrubs to catch water and hold it for the roots to absorb.

- Remove or kill weeds before they grow large. Weeds compete heavily with landscape plants for soil moisture and usually they win.

- Antidesiccant sprays may or may not be helpful in reducing moisture loss from leaves. There is no research that proves these materials perform as advertised.

- Keep the water on the site. Prevent rainfall and irrigation water from running into streets. Design features that direct runoff from down spouts, driveways and patios into lawn and garden areas where it can be absorbed. Be careful not to divert this water into planting areas that drain poorly, or plants may be damaged or killed.

A Selection of Drought-Tolerant Landscape Plants

The plants listed below are some that generally survive well under dry, hot conditions that would normally harm most other plants. It must be kept in mind that even these plants will require regular watering during the first season they are planted. The frequency of watering of established landscapes will vary based on the plant species, its conditions and maturity and soil conditions of the site.

<u>Shade Trees</u>

Red Maple	(*Acer rubrum*) (wet or dry situations, and depends on seed source)
Green Ash	(*Fraxinus pennsylvanica*)
Ginkgo	(*Ginkgo biloba*)
Tupelo	(*Nyssa sylvatica*)
Red Oak	*(Quercus rubra)*
Pin Oak	(*Quercus palustris*)
Zelkova	(*Zelkova serrata*)
Japanese Pagodatree	(*Sophora japonica*)
Golden Raintree	(*Kolreuteria paniculata*)
Japanese Tree Lilac	(*Syringa reticulata*)
Crapemyrtle	(*Lagerstroemia indica*)
Tulip Poplar	*(Liriodendron tulipfera)*

Evergreen Trees

Atlas Cedar	(*Cedrus atlantica*)
Colorado Blue Spruce	(*Picea pungens glauca*)
American Holly	(*Ilex opaca*)
Red Cedar	*(Juniperus virginiana)*

Deciduous Shrubs

Red Chokeberry	(*Aronia arbutifolia*)
Smoketree	(*Cotinus coggyria*)
Pinxterbloom Azalea	(*Rhododendron nudiflorum*)
Flameleaf Sumac	(*Rhus copallin*a)
Burning Bush	(*Euonymus alatus*)
Fragrant Wintersweet	(*Chimonanthus praecox*)
Japanese Barberry	(*Berberis thunbergii*)

Evergreen Shrubs

Heavenly Bamboo	(*Nandina domestica*)
False-Holly	(*Osmanthus heterophyllus)*
Mugo Pine	(*Pinus mugo*)
Pyracantha	(*Pyracantha coccinea*)
Glossy Abelia	(*Abelia x grandiflora*)
Junipers	(*Juniperus species)*

Herbaceous Plants:

May-June Blooming:

Cushion Spurge	*(Euphorbia sp)*
Candy tuft	(I*beris sempervirens)*
Dwarf Crested Iris	*(Iris cristata)*
Sea Pink	*(Armeria maritima)*
Perennial Bachelor's Button	*(Centaurea montana)*
Gas Plant	*(Dictamnus albus)*
Day Lily	*(Hemerocallis)*
Beaded Iris	*(Iris spp)*
Iceland Poppy	*(Papaver nudicaule)*

June-Sept Blooming:

Black Eyed Susan	*(Rudbeckia hirta)*
Yarrow	*(Achillea filipendulina)*
Coreopsis	*(Coreopsis lanceolata)*
Coreopsis	*(Coreopsis verticillata)*
Foxtail Lily	*(Eremurus x isabellinus)*
Blanket Flower	*(Gaillardia x grandiflora)*
Perennial Baby's Breath	*(Gypsophila paniculata)*
Red-Hot Poker	*(Kniphofia uvaria)*
Moneywort	*(Lysimachia nummularia)*
Perennial Salvia	*(Salvia x superba)*
Yucca	*(Yucca filamentosa)*
Blue Fescue	*(Festuca glauca)*
Hens and Chicks	*(Sempervivum tectorum)*
Goldenrod	*spp.(Solidago)*
Lamb's Ear	*(Stachys byzantina)*
Pearly Everlasting	*(Anaphalis margaritacea*
Silvermound	*(Artemesia schmidtiana)*
Liatris	*(Liatris spicata)*
Sedum	*(Sedum spectabile)*

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